LISTING OF THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Original) A method for sensing selected emotions in a human subject, comprising the steps of:

generating an image of substantially all of the face of a human subject;

processing the image to identify movements in selected critical areas of the face;

comparing the identified movements in the selected critical areas with a database that associates movements in selected critical areas with specific emotional and physical conditions; and

generating a report of the emotional and physical condition of the subject.

2. (Original) A method as defined in claim 1, wherein the processing step comprises:

inputting a two-dimensional frame of the image;

scanning the image to locate the subject's face and determine it's relative position and extent;

scanning the facial part of the image to detect the selected critical areas;

repeating the preceding steps for a sequence of image frames;

recording frame-to-frame changes in critical areas of interest; and

recording frame-to-frame changes in critical area positions, for purposes of tracking the positions while permitting limited movement of the subject.

3. (Currently Amended) A method as defined in claim 2, wherein the step of recording frame-to-frame changes in critical areas of interest includes recording changes in at least one speckle-spot area in the critical areas of interest.

4. (Original) A method as defined in claim 2, wherein the step of recording frame-to-frame changes in critical areas of interest includes recording changes in axial distance, to facilitate detection of axial pulsing movements.

5. (Original) A method as defined in claim 1, wherein the comparing step makes use of a database that uses the facial action coding system (FACS).

6. (Original) Apparatus for sensing selected emotions in a human subject, the apparatus comprising:

an optical imaging device, for generating an image of substantially all of the face of a human subject;

an image processing module, for processing the image to identify movements in selected critical areas of the face;

a database that associates groups of facial movements with specific emotional and physical conditions of the subject;

a database analysis module, for comparing the identified movements in the selected critical areas with the database; and

a report generator, for generating a report of the emotional and physical condition of the subject.

7. (Original) Apparatus as defined in claim 6, wherein the optical imaging device comprises a charged-coupled device (CCD) camera producing a two-dimensional image.

8. (Currently Amended) Apparatus as defined in claim 6, wherein the image processing ~~modules~~ module comprises:

means for inputting a two-dimensional frame of the image;

means for scanning the image to locate the subject's face and determine it's relative position and extent;

means for scanning the facial part of the image to detect the critical areas of interest;

means for repeating the preceding steps for a sequence of image frames;

means for recording frame-to-frame changes in the critical areas of interest; and

means for recording frame-to-frame changes in critical area positions, for purposes of tracking the positions while permitting limited movement of the subject.

9. (Currently Amended) Apparatus as defined in claim 8, wherein the means for recording frame-to-frame changes in the critical areas includes means for recording changes in at least one speckle-spot area in the critical areas of interest.

10. (Currently Amended) Apparatus as defined in claim 8, wherein:

the optical imaging device includes means for measuring axial distance to a critical area of the face; and

the means for recording frame-to-frame changes in critical area positions includes means for recording changes in axial distance, to facilitate detection of axial pulsing movements in [[a]] the critical area of the face.

11. (Original) Apparatus as defined in claim 8, wherein the database uses the facial action coding system (FACS).

12. (New) A method as defined in claim 1, wherein generating the image comprises implementing electronic speckle pattern interferometry to generate a speckle-spot pattern of diffusely reflected coincident light that corresponds to the face of the human subject.

13. (New) A method as defined in claim 12, wherein processing the image comprises identifying fluctuations in multiple-pixel reflectivity of the speckle-spot pattern compared with non-vibratory areas of adjacent facial surfaces to identify the selected critical areas of the face.

14. (New) A method as defined in claim 12, wherein processing the image comprises tracking and recording frame-to-frame changes in at least one of position, size, and intensity of speckle-spots in the selected critical areas of the speckle-spot pattern.

15. (New) A method as defined in claim 1, wherein generating the image comprises:

obtaining a first image of substantially all of the face of the human subject at a beginning of a pulse period associated with a pulsed light source;

obtaining a second image of substantially all of the face of the human subject at an end of the pulse period associated with the pulsed light source; and

subtracting the second image from the first image to generate a resulting image of substantially all of the face of the human subject having a high contrast ratio.

16. (New) Apparatus as defined in claim 6, wherein the optical imaging device implements electronic speckle pattern interferometry to generate a speckle-spot pattern of diffusely reflected coincident light that corresponds to the face of the human subject.

17. (New) Apparatus as defined in claim 16, wherein the image processing model is configured to identify fluctuations in multiple-pixel reflectivity of the speckle-spot pattern compared with non-vibratory areas of adjacent facial surfaces to identify the selected critical areas of the face

18. (New) Apparatus as defined in claim 16, wherein the image processing model is configured to track and record frame-to-frame changes in at least one of position, size, and intensity of speckle-spots in the selected critical areas of the speckle-spot pattern.

19. (New) Apparatus as defined in claim 6, wherein the optical imaging device is configured to obtain a first image of substantially all of the face of the human subject at a beginning of a pulse period associated with a pulsed light source, to obtaining a second image of substantially all of the face of the human subject at an end of the pulse period associated with the pulsed light

source, and to subtract the second image from the first image to generate a resulting image of substantially all of the face of the human subject having a high contrast ratio.